DOCUMENT RESUME

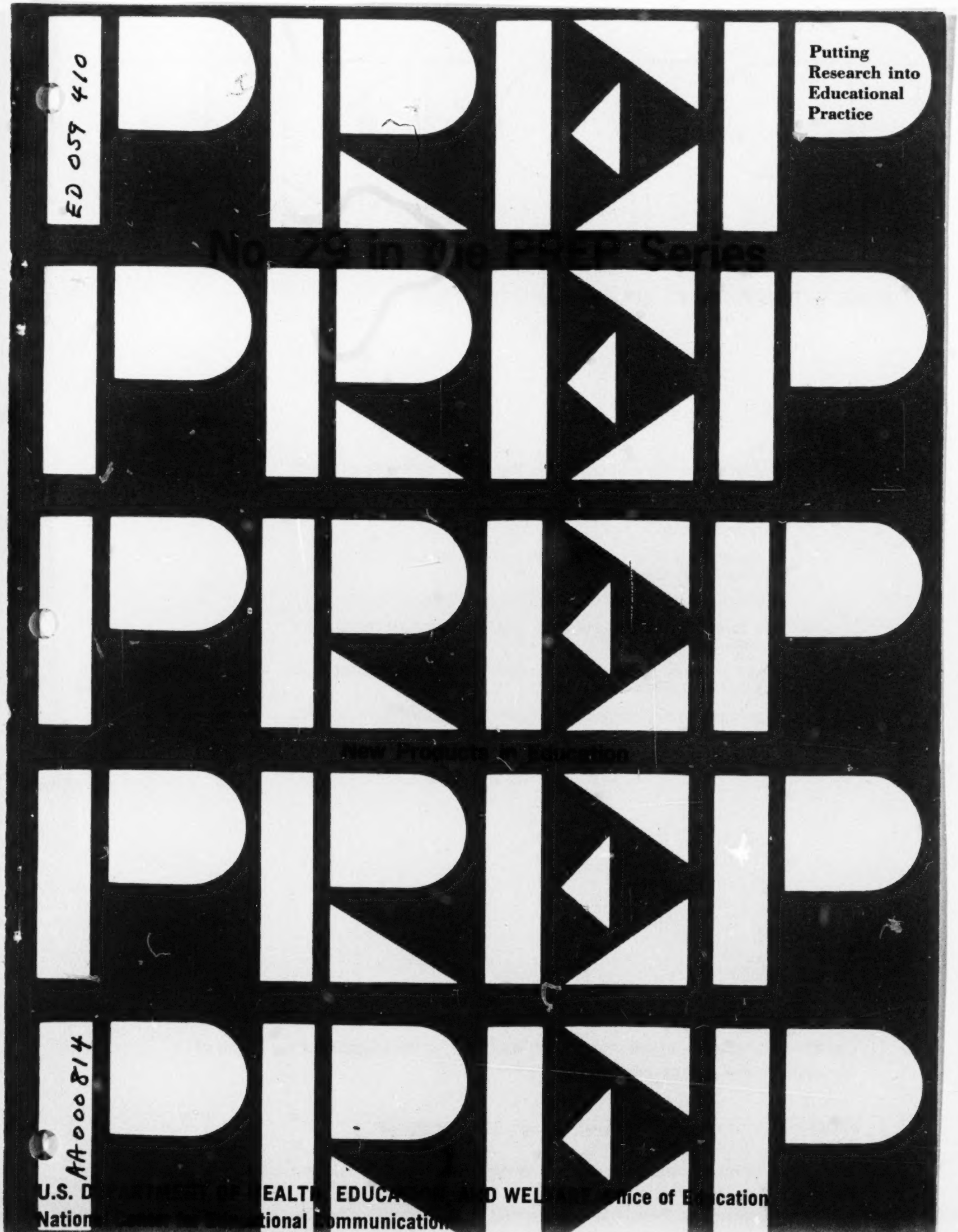
ED 059 410 AA 000 814

TITLE	New Products in Education. PREP-29.
INSTITUTION	National Center for Educational Communication (DHEW/OE), Washington, D.C. Division of Practice Improvement.
REPORT NO	DHEW-(OE)-72-9; PREP-29
PUB DATE	72
NOTE	37p.
AVAILABLE FROM	Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 ($6 a year; foreign, $1.50 additional. Single copy: $0.55)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Adult Basic Education; Arithmetic; Communication Skills; *Curriculum Development; Early Childhood Education; *Educational Programs; Individualized Instruction; *Information Dissemination; *Instructional Materials; Library Programs; Mathematics Instruction; Multiunit Schools; Questioning Techniques; Readiness (Mental); *Research Utilization; Science Instruction; Teacher Education
IDENTIFIERS	PREP; *Putting Research into Educational Practice

ABSTRACT

New educational products, broadly defined as validated output from education R&D programs designed for practical application, are listed. Some of the products are directed toward educational problems of critical importance; others address themselves to instructional or administrative topics of lower current priority. The products, nominated by their developers and reviewed by a panel of educators, have been satisfactorily field tested, and are available for widespread implementation. The products are: Adult Basic Education: ESL-Empleen Ingles; Comprehensive School Mathematics; Cooperative Urban Teacher Education; Effective Questioning--Elementary Level; First Year Communications Skills Program; Home-Oriented Early Childhood Education; Individualizing Instruction in Mathematics; MATCH (Materials and Activities for Teachers and Children) Box; Multi-Unit Elementary School; Parent/Child Toy Lending Library; Patterns in Arithmetic; Reinforced Readiness Requisites Program; and the Teaching of Science--A Self-Directed Teacher Education Program. Descriptions of each product are given, together with the developers' names and addresses. In addition, a list of some of the schools where the products are being used and the names of people with knowledge of their applications is provided. Exhibits on 10 of the products are available. (DB)

ED 059 410



Putting Research into Educational Practice

No. 29 in the PREP Series

New Products in Education

AA000 814

U.S. D[illegible] EALTH, EDUCA[illegible]D WEL[illegible]ffice of Education
Nation[illegible]tional Communication[illegible]

PRIP

PUTTING RESEARCH INTO EDUCATIONAL PRACTICE

- *a synthesis and interpretation of research, development, and current practice on a specific educational topic*
- *a method of getting significant R&D findings to the practitioner quickly*
- *the best thinking of researchers interpreted by specialists, in simple language*
- *the focus of research on current educational problems*
- *a format which can be easily and inexpensively reproduced for wide distribution*
- *raw material in the public domain which can be adapted to meet local needs*
- *an attempt to improve our Nation's schools through research*

Use of funds for printing this publication approved by the Director of the Office of Management and Budget July 27, 1970.

Subscription: Domestic, $6 a year; foreign, $1.50 additional.
Single copy: Domestic, 55 cents.
Send check or money order (no stamps) to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

DHEW Publication No. (OE) 72-9

NEW PRODUCTS IN EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/Office of Education
National Center for Educational Communication

NEW PRODUCTS IN EDUCATION

Educational products[1] are continually being developed to meet the changing needs of today's students. The Office of Education has funded the development, field testing, and validation of new products through the regional educational laboratories, research and development centers, and individual projects. When the products are ready for mass adoption/adaptation in the local schools, the National Center for Educational Communication (NCEC) uses various dissemination strategies to bring these innovative products to the attention of the educational community.

Product Identification and Selection

A decision must be made on which of the many new educational products to focus dissemination activities. For example, in the spring of 1971 about 70 products were identified as being "ready" for school installation. NCEC uses the following procedures to select those products upon which to concentrate.

Product Nomination

Products were nominated for consideration by their developers, who supplied descriptive information and validation data. Two prime considerations for review were set: (1) the products must have been exposed to and satisfactorily completed field tests and (2) they were now available for widespread implementation outside the developmental setting.

Selection Panel

A panel of educators was formed to judge the products which had been nominated. The panelists were selected not only for their professional expertise but also for their ability to make objective judgments about the products being considered. They represented many educational areas—curriculum and instruction, teacher training, evaluation, product development, school administration, philosophy and history, and school/urban affairs.

Selection Process

The panel evolved a set of rigorous criteria, which they translated into a rating form (see figure 1). Using this form, the panelists individually rated each product after a detailed analysis, eventually moving to a group judgment on which products to recommend for dissemination and installation. It should be noted that some quality products—because of such considerations as cost, size of target population, and lack of evaluation data—were not among those selected.

Products Selected

Following is a list of the products, with the name of the developer, recommended for adoption/adaptation to improve educational practice. Some of the products are directed toward educational problems of critical importance; others address themselves to instructional or administrative topics of lower current priority. They are listed alphabetically by title of product.

- Adult Basic Education: ESL-Empleen Ingles —Southwestern Cooperative Educational Laboratory, Inc., Albuquerque, N.M.

[1] In this report a *product* is broadly defined as a validated output from an educational R&D program designed for practical application. A product might include one or more of the following: a curriculum, teacher training materials, an administrative organizational system, individualized and group instructional materials, etc.

NOTE.—Material for this PREP report was obtained from several sources: (1) two publications of the Educational Testing Service, Princeton, N.J.—*Selection of Products for Focused* Dissemination (ED 050 308) and *Products Entered into the Pool for the Dissemination Program of NCEC* (ED 050 309), and (2) information supplied by the developers of the products selected for installation.

RATING FORM – PRODUCT EVALUATION POOL '71

PRODUCT CODE NUMBER: AC _____ (Further descriptions if desired; Aim, or Author, Institutional Sponsor etc. .....

RATER'S NAME / CODE: ..... Date of Rating / /71

GOALS [A = Excellent B = Good C = Possible D = Unimpressive]

Considerations: Urgent Present Need / Desirable Originality / Educational Centrality / Size of Target Population / ..... (other)

Circle those of unusual positive significance.
Strike out any that struck you as notably deficient.

Indicate here if alternative conception of goals or target etc. has been used as a basis for second rating sheet ☐

Rating: A B C D (Circle one or more; or add ± if preferred)

EFFECTIVENESS [A, B, C, D, or "F" = Undesirable, or "?" = No reasonable estimate possible at this time]

Using data of 1971

Considerations: Adequacy of Test Data (Sample Size, Sample Fairness, Appropriate Controls, Objectivity of Judgment) / Performance in Field Trials Including Teacher Feed-back / Background or Internal Evidence Suggesting Success or Failure e.g. Prior Track Record

Rating on Stated Goals: A B C D F ?

Rating on Side Effects or Unanticipated Effects: A B C D F ? ..... (Describe Side Effect)

"COSTS"

To User

Considerations: Extra (or less) Professional Staff / Extra (or less) Maintenance Staff / In-service Training Costs / Consultant Costs / Repair and Substitute Costs / Extra Space Costs / Extra (or less) Time Required / System Disruption / Opposition ·Students ·Staff ·Community

Rating:

Costs of Installation:	Negligible	Modest	High	?	COSTS
Costs of Maintenance:	Normal Range	High	Very High	?	SAVINGS
Non-dollar Costs:	Minimal	Tolerable	Excessive	?	

ADOPTABILITY

MATERIALS: Immediate Unlimited Availability / Immediate Limited Availability / Sample Materials Only / Evaluation Materials Availability

ADMINISTRATION: Requires Special Training in Advance of Use / Likely to be System-disruptive / Plant installation Required (Lead-time.....years)

Rating: Easy A B Few Problems C D Too Difficult F ?

OVERALL

Considerations: Circle factors, if any, that particularly affected your judgment

Above Judgments About: Goals Effectiveness / "Costs" Adoptability / USOE Priorities / Other Support Available (or not available) / "Impact" or "Leverage" or "Multiplication" Effect of Support / Existence of Alternative Products comparable in adoptability and at least equally cost-effective and desirable

[CRITICALLY COMPETITIVE PRODUCT(S) .....]

Rating of need for USOE 1971 dissemination support based on data available 4/71: A B C D F

Figure 1. - Rating form

- Comprehensive School Mathematics—Central Midwestern Regional Educational Laboratory, Inc., St. Ann, Mo.
- Cooperative Urban Teacher Education—Mid-Continent Regional Educational Laboratory, Kansas City, Mo.
- Effective Questioning—Elementary Level—Far West Laboratory for Educational Research and Development, Berkeley, Calif.
- First Year Communications Skills Program—Southwest Regional Laboratory for Educational Research and Development, Inglewood, Calif.
- Home-Oriented Early Childhood Education—Appalachia Educational Laboratory, Inc., Charleston, W. Va.
- Individualizing Instruction in Mathematics—Far West Laboratory for Educational Research and Development, Berkeley, Calif.
- MATCH (Materials and Activities for Teachers and Children) Box—The Children's Museum, Boston, Mass.
- Multi-Unit Elementary School—Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison
- Parent/Child Toy Lending Library—Far West Laboratory for Educational Research and Development, Berkeley, Calif.
- Patterns in Arithmetic—Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison
- Reinforced Readiness Requisites Program—Southwestern Cooperative Educational Laboratory, Albuquerque, N.M.
- The Teaching of Science—A Self-Directed Teacher Education Program—Research and Development Center for Teacher Education, University of Texas, Austin

Figure 2, in a matrix design, presents such selected information for each product as purpose, target population, educational level, and academic field. A more complete description of each product follows, together with the name and address where further information may be obtained.

ADULT BASIC EDUCATION: ESL-EMPLEEN INGLES

"Empleen Ingles" is a unique technique for teaching English to Spanish-speaking adults. The program is designed to meet the Mexican-Americans' needs through a practical application approach to English.

Thirty half-hour films, designated as the *Empleen Ingles* series, have been produced by the University of Arizona under contract to the Southwestern Cooperative Educational Laboratory. The films depict true-to-life situations, dealing with such topics as consumer education, the handling of tools, home nursing care, personal hygiene, completing application forms, understanding weights and measures, counting money, telling time, reading traffic signs, oral communication in grocery shopping and visiting a doctor's office or medical clinic, and communicating with a child's teacher. Such techniques as animation, color, dancing, humor, and music with a Mexican beat are used to hold the viewer's attention.

A bilingual hostess provides continuity for the series. Animated characters speak English and, in combination with the hostess, present Spanish explanations and repetition opportunities for English vocabulary and pronunciation.

An instructional package, written at the fourth-grade level, supplements the film series. These materials were developed so that school children in the family could aid their parents in practicing the English they learn from the films.

The videotape lessons were designed for home viewing via commercial or educational TV; however, they may also be used in a classroom setting. The tapes have been field tested in rural migrant, rural stationary, and urban settings in California, Texas, Colorado,

Item	Basic Education: ESL-Empleen Ingles	Adult Comprehensive School Mathematics	Cooperative-Urban Teacher Education	Effective Questioning—Elementary Level	First Year Communication Skills Program	Home-Oriented Early Childhood Education	Individualizing Instruction in Mathematics	MATCH Box	Multi Unit Elementary School	Parent/Child Toy Lending Library	Patterns In Arithmetic	Reinforced Readiness Requisite Program	Teaching of Science: A Self-Directed Personalized Teacher Education Program
Purpose													
End neglect	X											X	
Individualize instruction								X					
Group instruction					X								
Train teachers			X				X						X
Administer programs										X			
Combination		X		X		X			X		X		
Target population													
Blacks, Mexican-Latin Americans, Indians, Eskimos	X												
All disadvantaged groups			X									X	
Disadvantaged and other learners						X			X	X			
Students in a field		X											
Common interest				X							X		
No target						X	X	X					X
Educational level													
Preschool and elementary						X				X			
College			X	X			X						X
Cross level		X						X	X		X		
Adult basic	X												
Academic field													
Language arts	X				X								X
Science		X					X						
Mathematics											X		
Fine and performing arts			X										
Multidisciplinary cross-field								X	X	X		X	
No field—a method, technique, system or classroom management				X		X							

Figure 2.—Selected data on the 13 products.

New York, and Florida. Results indicate that the tapes are successful in teaching oral English to Spanish-speaking adults.

Further information on the program may be obtained from:

Director, Adult Basic Education
Southwestern Cooperative Educational Laboratory, Inc.
117 Richmond Drive, N.E.
Albuquerque, N.M. 87106
(505) 265/9561

COMPREHENSIVE SCHOOL MATHEMATICS PROGRAM

The Comprehensive School Mathematics Program (CSMP) is a new, individualized, K-12 mathematics program aimed at overcoming the four main sources of dissatisfaction with current mathematics education:

- Irrelevant curriculum content
- Static view of mathematics
- Regimented classrooms and materials
- Inadequately prepared teachers

It is sound in content, enjoyable, and geared to the students' individual interests and abilities. The materials were developed so that students may work alone or in small groups.

The basic mode of instruction at the elementary level is an activity package, a well-organized sequence of 10-20 activities related to a specific mathematical concept or idea. The package may include a variety of materials, such as instructional games, experiments, texts, programed instruction, audio and visual tapes, and computer-assisted instruction.

In addition, a series of 15 textbooks has been prepared for highly motivated and verbal students at the secondary level. These provide students the opportunity to advance as far in mathematics as their individual talents allow.

CSMP has also designed a teacher training program using knowledgeable educators and mathematical experts to help familiarize teachers with the new materials and teaching approaches. The teacher generally serves as a resource person and an adviser who directs each student through his activity package sequence. He is also responsible for deciding the sequence of activities for each child, according to his ability and performance.

Further information on the program may be obtained from:

Central Midwestern Regional Educational Laboratory, Inc.
10646 St. Charles Rock Rd.
St. Ann, Mo. 63074
(314) 429–3535

COOPERATIVE URBAN TEACHER EDUCATION (CUTE)

The program is a curriculum providing one semester (16 weeks) of full-time interdisciplinary field experiences for college students majoring in education who plan to teach in urban school systems. It seeks to improve the preparation of potential inner city teachers and to bring about close cooperation between college and urban school systems. The program is based on the assumption that a prospective inner city teacher will be better prepared if he (1) understands both his own and his pupils attitudes, insecurities, anxieties, and prejudices; (2) understands both his own and his pupils' environment and culture; and (3) has a command of teaching strategies and methods that work for inner city learners.

Major thrusts of the program are first-hand orientation, exploration and involvement in social and cultural variations of the inner city and teaching in the inner city schools under the supervision of qualified cooperating teachers. Students are encouraged to participate in such activities as tutoring inner city children, working in the neighborhood centers and storefront

churches, and experiencing a weekend live-in in low socioeconomic homes. In addition to 8 weeks of student teaching, seminars are held where emphasis is placed on classroom methods for inner city schools and the psychology of learning. Four microteaching sessions apply the methodological approaches discussed in seminars; and mental health sessions provide an opportunity to discuss and analyze feelings, problems, and frustrations to ameliorate the effects of cultural shock.

This curriculum is thought to be unique in the following respects:

- The program is housed in the inner city and, although students enroll in their home institutions, they come to the city for the 16-week field experience and are involved with various community agencies.
- There is a high degree of interdisciplinary cooperation with psychologists, sociologists, and educators involved.
- Teacher self-understanding is given more emphasis than is usual in teacher education programs.
- Inner city residents participate in evaluation of students to determine their knowledge of the inner city and their competence as potential inner city teachers.

A comparison study was executed with students who had participated in the CUTE program in three locations and comparable students who had not experienced the program. Data were collected three times during the 16-week training program, at the beginning, at the end of 8 weeks, and at the end of the 16-week training. Research data from 1968–70 indicate change in the desired direction of both student teacher attitudes and verbal classroom behavior, particularly during the first 8 weeks of the program. Classroom management practices and teaching skills were found to be better among CUTE-exposed student-teachers. They were more democratic in their teaching, understood inner city learners better, had a higher level of positive mental health, and exhibited a greater degree of flexibility in accommodating to a variety of situations.

In the 1969–70 field experience with student teachers, 78 percent of 122 students graduating accepted teaching positions—55 percent in urban schools, and 6 percent in related fields such as social work, a reasonably good indication that the program had a positive effect on potential inner city teachers. It was also observed that the objective of close cooperation between teacher-training institutions and public school systems and community agencies was realized.

Followup studies of the graduates of the program indicate that 71 percent of the graduates teaching in the 1969–70 school year were in inner city schools, and 81 percent of the graduates who had signed contracts for 1970–71 were for inner city positions. Also, not one graduate had given as a reason for leaving a position a dislike for teaching in the inner city. The majority of CUTE students also received above-average ratings when compared with other first-year teachers by their principals, and average or above when compared to all other staff. The principals also indicated that they would rehire all but three of the CUTE-trained teachers.

CUTE can be installed and operated for about $60,000 to $70,000 per year, including salary of special personnel, stipend for cooperating teachers, tapes for microteaching purposes, transportation for field experiences and supervision, books, reading materials, and office supplies. Close cooperation with inner city schools facilitates use of inner city classrooms without additional charges. Onsite costs encountered by student-teachers, including their housing, are additional expenses.

The interdisciplinary nature of the program requires: a half-time field-oriented sociologist, a half-time mental health specialist, two full-time teacher education specialists (elementary and secondary), and one cooperating teacher for each prospective teacher. There should be a master's degree minimum requirement for the sociologist and teacher education specialists. The mental health specialist should have

an orientation compatible with the objectives of the program.

It is desirable that facilities be located in or close to inner city agencies and educational institutions. Also a nearby house for students to live in enhances interaction and provides a supportive environment for participating students.

A group of 20 to 40 student-teachers enrolled at their respective colleges makes up a reasonable base for conducting the program. Full semester credit should be offered to students participating in the urban center off-campus activities.

There are CUTE projects in Kansas City, Wichita, Oklahoma City, and Omaha; and Model Cities as well as other fund sources are being used. Over its 4-year history, several awards have been made to the program.

For more complete information on the program write the:

Mid-Continent Regional Educational Laboratory
104 East Independence Avenue
Kansas City, Missouri 64106

EFFECTIVE QUESTIONING—ELEMENTARY LEVEL (MINICOURSE I)

This autoinstructional teacher training package contains (1) a Teacher Handbook, including self-evaluation forms, (2) a Coordinator Handbook, (3) 11 16 mm. instructional and model films, and (4) a textbook that gives detailed information on the Minicourse instructional model and reports of research evidence. Its prime use is for elementary teachers interested in the intermediate grades, and it is likely to be found more effective with experienced inservice teachers than with teacher-trainees.

This Minicourse instructional model involves the following activities on the part of the trainee: (1) studying the teaching skill of effective questioning, and viewing a filmed sequence which shows several expert teachers using these skills in a microteaching situation; (2) planning, conducting, video-recording, and self-evaluating a microteaching lesson; and (3) revising the lesson, reteaching, video-recording, and again self-evaluating.

The objectives are to increase the proportion of classroom incidents in which teachers will (1) ask questions that require students to use higher cognitive processes (such as evaluation, synthesis, problem solving); (2) deal with incorrect responses; (3) pause for a period of time between framing a question and calling for a pupil response; (4) redirect the same question to two or more pupils; and (5) probe pupil responses to increase pupil critical awareness. About half the skills sought are based on research findings, the remainder on "psychologically sound rationales." The general intent is to get teachers away from behaviors such as repeating their questions, answering their own questions, and otherwise talking too much.

Minicourse I was validated on 48 teachers who volunteered for the study. It made a significant difference in teacher effectiveness related to questioning techniques, regardless of the social class being served. However, a later study indicated that Minicourse I may not be as effective for teachers in inner-city schools as for teachers in the suburbs.

The Minicourse I package—including the films, the textbook, the Teacher Handbook, and the Coordinator Handbook—costs $1,425. Teacher Handbooks for participants cost $1.80 each. The instructional package may be rented at $175 for 6 weeks. Presenting the course requires a small room, 16 mm. sound projector, TV camera and videotape recorder, or an audiotape recorder.

A coordinator who needs no special training, other than familiarity with the Coordinator Handbook, takes care of scheduling and helps with equipment. Five to six pupils are also needed for the microteaching sessions.

Since the microteaching technique is best carried out during the regular schooiday, it is desirable for the school to provide each teacher participant with at least 8 hours of released time. In the typical case, since this can be spread over time, some schools have been managing this without engaging substitutes or by rotating a substitute from one classroom to another as the teachers are scheduled into their next minicourse lesson.

Minicourse I is currently available through Macmillan Educational Services, 8701 Wilshire Boulevard, Beverly Hills, California 90211.

For more complete information on the program write the:

Far West Laboratory for Educational Research and Development
1 Garden Circle
Hotel Claremont
Berkeley, California 94705

FIRST YEAR COMMUNICATIONS SKILLS PROGRAM (FYCSP)

The FYCSP is a comprehensive set of highly organized materials and procedures designed to teach the basic skills in English language communication to kindergarten students. Four supplementary programs are also available. The program is not restricted to any one group but is for all children at the kindergarten level. Program objectives are: (1) reading the approximate 100 words taught, (2) reading 23 selected initial and ending word sounds, (3) sounding out and reading any one-syllable word composed of elements taught, and (4) naming each letter of the alphabet when shown the printed letter. The FYCSP is composed of 19 units—timed at approximately 3 weeks per unit and 25 minutes per day.

One of the supplementary programs is the Instructional Concepts Program (ICP) which seeks to teach concepts basic to classroom instruction—colors, sizes, shapes, amounts, etc. The ICP consists of 65 lessons and takes 12 weeks.

In addition there is a Tutorial Program which involves upper-grade children in remedial in-class instruction; a Parent-Assisted Learning Program to involve parents in the education of their children; a Summer Reading Program to help children retain what they have learned; and a language and concept skills program for Spanish speakers. The FYCSP and ICP are heavily teacher-dependent.

A set of procedures has been developed for "quality assurance" in the FYCSP. Expectations of pupil performance and pacing of learning activities are built into the instructional programs in the form of pacing guidelines, regular assessment exercises, and individual achievement records. Additional materials and procedures have been developed for each component of the kindergarten program to specify optional alternatives in the event the monitoring information indicates the learner is not realizing the performance criteria. These quality assurance materials and procedures are related to: (1) midyear and end-of-year pupil performance, (2) information collection and reporting, (3) schoolwide sampling plan and schedule, (4) data processing, (5) decision rules for selecting alternative courses of action, and (6) guidelines for evaluation program modifications.

The FYCSP has been developed over a 4-year period and has involved experiments and field tryouts with more than 12,000 children in southwestern school districts. In 1970–71 it was used by approximately 30,000 children in 12 States—almost all kindergarten. Tryouts have been conducted in the inner-city schools of several large urban districts.

In each trial, comparisons of the pupils in the FYCSP with those in other curriculums have reportedly "demonstrated the superiority of the FYCSP on all objectives unique to the program, on all objectives shared in common with other programs, and on objectives unique to commercial programs."

The cost of the FYCSP is $94.20 per class of 30, $3.14 per pupil; of ICP, $49.50 and $1.65, respectively. Supplementary programs cost from $60 to $80. To install the entire system for a class of 30 would cost $280, or about $10 per pupil. Material that comes as part of the FYCSP includes procedure cards, alphabet and class cards, criterion exercise training cards, oral work index cards, activities and material cards, criterion exercise direction cards, animal and entry skills test cards, class record sheets, good work badges, and a teacher's manual. A classroom set includes 30 copies each of 52 storybooks, 10 criterion exercises, 40 practice exercises, one exercise training lesson, and eight comprehension sheets.

The program includes a research-based training system with all materials and procedures required to equip persons responsible for operation within the school district. The developer conducts half-day training sessions for district representatives, who in turn train teachers to use FYCSP in their schools. An alternate version of the training system has recently been packaged and is fully exportable from the laboratory. Audiovisual forms of in-

struction are used, and 3 hours are needed to prepare teachers for use of the program materials.

Using the Non-Exclusive Licensing Agreement, the developer works with school districts who first must determine the number of pupils who will use the program and the specific schools and classes within those schools which will participate in the tryout. A 3-year strategy, using Federal funds for incentive financing and working at the State agency level, has also been developed.

FYCSP presently is distributed through Delta Lithograph Company, 14731 Calif., Van Nuys, California 91401.

For more complete information on the program write the:

Southwest Regional Laboratory for Educational Research and Development
11300 Cienega Blvd.
Inglewood, California 90304

HOME-ORIENTED EARLY CHILDHOOD EDUCATION

This home-oriented education program was designed to provide effective early childhood education for children in isolated areas. The program has three components—a mobile classroom for weekly group sessions, daily television lessons, and individual guidance through the weekly home visit of a paraprofessional who works with the mother and child.

Building the program around these three components was predicated on research findings on early childhood education. For example:

- The "school on wheels" provides an opportunity for the young child to interact with other children in a classroom setting, which early childhood education specialists consider so essential. For 2 hours the children learn and have fun in the carpeted, electrically heated and air-conditioned setting, complete with books, toys, and equipment.

- Since about 95 percent of the homes in rural Appalachia (where the program was field tested) have TV sets and researchers say that children spend more than 4,000 hours of their preschool life watching TV, the program developers saw TV as an effective teaching instrument when coordinated with other teaching methods and activities.

- Research also shows that young children learn very rapidly in the familiar surroundings of their own home. Therefore, this program takes advantage of the home as a learning environment as well as the mother's cooperation and interest. A home visitor delivers special materials the child needs for upcoming television lessons, gives general instructions, and answers questions. The mother is responsible for seeing that the child watches the television lessons regularly, collecting small articles for the child to use during the lessons, observing her child's reactions to the televised lessons, and reporting these observations to the home visitor.

Program costs have been kept low enough to put the program within the financial reach of the Appalachian States. A study by one State showed that the costs were less than half those of sending a child to a regular kindergarten—even if one were available. The current operating cost per child is approximately $235.

Further information on the program is available from:

Appalachia Educational Laboratory, Inc.
1031 Quarrier St.
P.O. Box 1348
Charleston, W. Va. 25325
(304) 344–8371)

INDIVIDUALIZING INSTRUCTION IN MATHEMATICS (MINICOURSE 5)

This is a 13-hour self-instructional program designed to improve teachers' skills in the individual tutoring of pupils who are deficient in their understanding of mathematical concepts and algorithms. The program uses a microteaching approach: instruction by films and handbook, opportunity for controlled practice, feedback on one's performance, and an opportunity for improved practice. This Minicourse emphasizes *methods* rather than *content*.

There are five instructional sequences for accomplishing the objectives. The objectives (numbered items below) and skills covered in the sequences are as follows:

1. To improve teacher skill in rewarding pupils' correct responses and encouraging their active participation in the tutoring process.

   Skills: Using verbal praise to reward correct responses and asking prompting questions to increase the pupils' active involvement in the tutoring process.

2. To increase teacher skill in diagnosing pupils' deficiencies in understanding matematical concepts and computational procedures.

   Skills: Asking general diagnostic questions, questions to test pupils' understanding, and questions which test pupils' ability to read the problem and decide on an appropriate operation.

3. To increase teacher use of techniques which help to develop pupils' understanding of mathematical concepts and computational procedures.

   Skills: Estimating an answer prior to using a computational algorithm, using expanded notation, the number line, etc., having the pupil draw a picture of the problem and writing a number sentence to express its requirements.

4. To increase teacher skill in evaluating student progress and assigning practice examples.

   Skills: Assigning practice examples and an evaluation example.

5. To improve teacher skill in organizing the mathematics class period for individual tutoring.

   Skills: Having pupils correct their own work and tutor each other.

Teachers who participate in the Minicourse view nine 16 mm. color films—a general introductory film and pairs of films for the first four sequences. Each pair demonstrates the objectives sought and shows model teachers in regular classroom settings (operating from a prepared script) using each of the skills covered.

In pursuing sequence 1, for example, a teacher-in-training sees instances of a model teacher employing general verbal praise, specific verbal praise, and prompting questions. The *Teachers' Handbook* helps reinforce the learning of these skills. Two microteach lessons are then taught applying the objectives and employing the skills. After the first session, the teacher reviews a self-made videotape or audiotape of that lesson. The lesson is then improved on the basis of self-evaluation, presented again in a microteach setting and self-evaluated in the same manner.

Although the emphasis is upon tutoring skills and remedial work, the skills are useful in regular mathematics instruction as well. Moreover, teachers in regular instruction are afforded more time to give students individual attention; the Minicourse will help them learn to use their time effectively. Elementary school children who are exposed to the content of the sequences will also be helped, for the "number operations" and "verbal problem" areas from which the mathematical content was drawn are areas that most often present learning difficulties.

Evidence has shown that Minicourse 5 does bring about observable changes in mathematics tutoring skills. For example, the frequency of verbal praise increased by approximately 50 percent from pre- to post-course tapes. Positive gains were shown also in length of time spent in tutoring sessions, frequency of diagnostic questions, use of demonstration techniques,

and the number of practice exercises assigned.

The complete Minicourse 5 package is available through Macmillan Educational Service, 8701 Wilshire Boulevard, Beverly Hills, California 90211, at a cost of $1,395. The purchase price includes a complete set of materials: nine 16 mm. films (total running time 200 minutes), one *Teachers' Handbook,* one coordinator handbook, and one research report. The rental cost for a period of 6 weeks is $198. The only expendable item is the *Teachers' Handbook,* at a cost of $2.40 per teacher. Use of the Minicourse involves a 16 mm. film projector and either a video or an audio tape recorder. The Minicourse can be used in any existing school or university setting, provided that there is available at least a small room or other area for microteaching and a place for viewing films.

The Minicourse is a self-instructional product. A part-time coordinator is needed to train the elementary school teachers in the use of the equipment and to coordinate time schedules. In an inservice training setting, each teacher would need 13 hours of released time to see films, plan lessons, practice newly acquired skills, and complete self-evaluations.

For more complete information on the program write the:

Far West Laboratory for Educational
Research and Development
1 Garden Circle
Hotel Claremont
Berkeley, California 94705

MATCH (Materials and Activities for Teachers and Children) BOX

MATCH Boxes are self-contained, multimedia kits designed to enable elementary school teachers and children to learn and communicate predominantly through nonverbal means. They stress the child's involvement and responsibility for his own learning. Each kit is designed for a class of approximately 30 students to use daily for an hour to an hour and a quarter for 2 to 3 weeks, after which it can be circulated to another class.

Kits were developed in three "generations," with tryouts in classrooms after each phase:

First generation, 1963	*Target*
Grouping Birds	K-2
The City	1-3
The Algonquins	3, 4
Seeds	3, 4
A House of Ancient Greece	5, 6

Second generation, 1966	*Target*
Houses	Nursery-2
Animal Camouflage	2, 3
Netsilik Eskimos	3, 4
Musical Sound and Shapes	3, 4
Rocks	5, 6
Japanese Family 1969	5, 6
Medieval People	5, 6

Third generation, 1967	*Target*
Waterplay	Nursery-2
Imagination Unlimited	3-4
"Paddle-to-the-Sea"	4-6
The MATCH Box Press	5-5

The teacher's guide, which accompanies each kit, includes a bibliography and detailed plans for activities that can be carried out with the kit. A typical kit, from 40 to 100 pounds, contains photographs, films, pictures, recordings, and models which can be handled and used by individual students and by small groups of students. "The City" is intended to show how a city changes, the importance of the neighborhood, and the variety of city sounds. "Japanese Family 1969" includes Japanese clothing (which may be tried on), chopsticks, and Japanese food. The activities include dividing the class into families whose histories are documented by photograph albums and books of family history. The teacher's guide for "A House in Ancient Greece" suggests that the class be divided into teams of archaeologists to excavate an ancient villa.

The consensus of teachers using the Boxes seems to have been that the Boxes are highly successful, original, and student-involving. Teachers as well as students learned from them; the teachers encountered new methods that they then could apply in other classroom situations. Too, the situations set up in using the Boxes gave teachers the opportunity of getting to know their students better and more quickly, with the varied student response modes evoked by the kits—writing, role playing, discussion—affording a good opportunity to observe student behaviors. There was some indication that the Boxes work particularly well with slow learners.

Thirteen Boxes are available on a rental basis from the Children's Museum at an average cost of $35 for 2 weeks, with distribution limited to New England. Three of the kits are in commercially published form, ranging in price from $525 to $770, with film in color. Teacher's guides are $4; 4-year maintenance costs are estimated at $120; and the total 5-year cost of the Boxes is estimated to average $670 per MATCH Box. The publisher is American Science Engineering, 20 Overland Street, Boston, Massachusetts 02215.

Although teachers require no special training, there being a teacher's guide which provides instructional information, workshops in the use of MATCH Boxes are offered by the Children's Museum at a fee of $5 per participant. Interested schools may secure Boxes for preview from the publisher.

MATCH Boxes have had wide reaction in all major media, including television. About 34,000 students have used them, and 4,000

educators have attended 60 workshops in their use. Kits available on a rental basis are scheduled months in advance.

For more complete information on the program write:

The Children's Museum
Jamaicaway
Boston, Massachusetts 02130

MULTI-UNIT ELEMENTARY SCHOOL (MUS–E)

The Multi-Unit School (MUS–E) is a component of a larger system of education and instruction called Individually Guided Education (IGE). The latter is designed to produce higher educational achievement through adequate provision for differences among students in a rate of learning, learning style, and other characteristics. Included in the IGE are extensive organizational models for instruction and administration in schools and districts (MUS–E component), instructional programing for each individual student with related monitoring and guidance, curriculum materials as necessary, evaluation and assessment of learning readiness, achievement measures not only for the student but also for teachers, and accountability measures for the programs themselves. The system also encompasses development of facilitative environments in school buildings and districts, State education agencies, teacher education institutions, and finally a component for continuing research and development.

As a component of the IGE, MUS–E was designed to develop and refine an organization for instruction and related administrative arrangements on the school building level that will make possible (1) instructional programing for individual students in the various curriculum areas; (2) shared decisionmaking by administrative and instructional personnel (3) open communication among students, instructional personnel, and administrative personnel; and (4) accountability for the performance of educational personnel and for student achievement and staff development. To obtain these objectives, a tri-level, hierarchical, organizational-administrative arrangement has been developed as follows:

a. An organization for instruction replacing the self-contained classroom, called a nongraded instruction and research unit (I & R unit), in which instructional programs for individual children are planned, carried out, and evaluated by an instructional unit staff comprised of a lead teacher, two or more staff teachers, a teaching intern, and one or more aides. A school of 600 typically organizes into four multiage I and R units of about 150 children each, and a staff of at least five.

b. An instructional improvement committee in each building, comprised of the building principal and the lead teachers of the I & R units that takes primary initiative for (1) stating the educational objectives and developing the educational program for the entire school building; (2) interpreting and implementing districtwide and statewide policies that affect the educational program of the building; (3) coordinating unit activities to achieve continuity in all curriculum areas; and (4) arranging for the use of facilities, time, and material that the I & R units do not manage independently.

c. A districtwide policy committee—comprised of the central office representatives, building principals, and I & R unit lead teachers—that takes primary initiative for developing policies and providing the human and material resources essential for successful multiunit school operations.

Results obtained during 1968–70 in two functioning MUS–E's where the Wisconsin Reading Course was also in use, and after the I & R units had been operating smoothly for a year, illustrate the kinds of evaluation being done. Compared with control schools, in the Multi-Unit Schools:

- Teachers spent more time in planning for instruction and diagnosing individual children's needs
- Teachers participated more in instructional decisionmaking
- Specialization of labor occurred among the instructional staff

- Communication increased among the instructional staff and between the building principal and the several lead teachers
- Goals were set by the instructional staff in terms of pupil achievement in reading

Moreover, children gained more skill in reading as measured by standardized criterion-referenced tests. They made larger gains during the first year of MUS–E operations than they had during the prior years.

In operation, a staff of seven—a lead teacher, two staff teachers, one resident teacher, one teaching intern, and two aides—typically instruct the same number of children as did five regular teachers. Costs for this differentiated staff is about the same as for five experienced teachers. Training requirements for the professionals to be involved in MUS–E responsibilities include a 1-day workshop for the chief school officer, a 3-day workshop for prospective building principals and the lead teacher, and a 1-week institute prior to the opening of the school term for the entire building staff. In addition, there needs to be a 1-day workshop for the building staff during the first semester, and another during the second semester. To operate a MUS–E unit requires approximately $20 per pupil, used for any combination: one instructional aide per 150 students, additional instructional materials, and higher pay for the lead teacher. Initial startup costs for the inservice training of 30 teachers is estimated to be $6,500.

It is preferable to have "open style or pod-type" school buildings. For a school of 600 there should be an instructional resource center to accommodate 90 children. Estimated cost for remodeling and equipping two resource centers is $10,000.

As is apparent from the above, the organizational changes required are major ones. The organization, construction, and administrative arrangements of the instructional space and central office are installed through a carefully designed four-phase inservice educational program, each involving use of multimedia instructional materials. Components parallel with the organization and installed simultaneously are (1) the instructional programing model for the individual student, and (2) a curriculum package in reading as one focus area through which to actually implement programing for the individual student. Strong support from the chief school officer and the board of education is essential, and it is necessary to have above-average instructional leadership, a readiness on the part of all participants to pursue the sequences of the inservice training program.

The Multi-Unit School has demonstrated its feasibility. Without outside support, the number of multiunit schools installed in the State of Wisconsin by the Department of Public Instruction increased from nine in 1967–68 to 99 in 1970–71.

For more complete information on the program, write the:

Wisconsin Research and Development Center for Cognitive Learning
University of Wisconsin
1404 Regent Street
Madison, Wisconsin 53706

PARENT/CHILD TOY LENDING LIBRARY

This product is designed to serve parents whose income is above the OEO guidelines for Head Start but who cannot afford traditional nursery schools for their 3- and 4-year-old children. It includes a course for parents, and toys integrated into learning episodes to put out on loan. The course consists of 10 to 12 weekly 2-hour sessions designed to help parents learn some basic concepts relating to the development of their child's intellect and self-concept, and to instruct the parents in the use of some toys and games to aid the child in learning specific skills and concepts. The toys are available to be taken home on loan between the sessions. "Alumni" of the program may borrow toys, games, and books after the course is over.

The program's objectives are (1) to facilitate the development of a healthy self-concept in the children; (2) to promote children's intellectual development using toys and learning episodes that are designed to teach specific skills, concepts, and problem-solving abilities; (3) to stimulate interaction between parent and child; and (4) to encourage parents to participate in the decisionmaking process that affects the education of their children.

The learning episodes for both parent and child, and the toys and games supporting them, are designed to help the child develop his senses, perceptual acuity, language skills, concept formation and problem-solving abilities, and positive self-image; and to help parents initiate actions in behalf of the affective development of the child. Evaluation tests showed that (1) the children learned a considerable amount over the 10 weeks of involvement, and (2) a large portion of what they did learn during this time can be attributed to this program.

Responses on what parents thought they had learned fitted into the following categories:

- More understanding of their child's growth and development
- Realization that a mother's effort can have a positive effect on a child's mental development
- Knowledge that a mother's participation with her child can contribute to the child's positive self-concept
- Insight that learning can come from playing
- Skill in the use of positive correction
- A child can learn more than his parent thought he could

The cost for implementing the program is about $1,500 which includes all the toys, written instructions, film scripts, and other materials needed to operate the course and the library. The yearly salary of the teacher-librarian is additional and determined by the going rate in the community involved. After receiving training in the program, and a 1-week familiarization workshop, paraprofessionals (parents) may be used to teach the program. After the library has been set up, a site visit by the developer is recommended to assure that the operation will work to best advantage.

Developers see training of teacher-librarians to be the key to implementation. Ideally, it is thought, university consultants would be trained, and they in turn would train people to operate the Toy Lending Library program.

Present dissemination plans and actions include imminent installation of scaled-down versions in 75 villages in Alaska in a program that includes a training component for preparation of teacher-librarians, plans for a toymobile to circulate among remote rural communities, and use of the product to prepare "teaching assistants" for Head Start centers in six cities.

One problem in implementation is lack of continued attendance through completion of the course. This is not a matter of loss of interest or lessening enthusiasm, but interruptions related to child-care and difficult home situations. Recruitment of interested mothers has

not been found to be a problem. Flexibility in scheduling and repeating lessons seems to be needed, though, to help mothers persist in their effort to benefit from the whole program.

For more complete information on the program, write the:

Far West Laboratory for Educational
Research and Development
1 Garden Circle
Hotel Claremont
Berkeley, California 94705

PATTERNS IN ARITHMETIC

Patterns in Arithmetic (PIA) is a complete mathematics program for grades 1–6, utilizing 336 15-minute videotaped lessons with accompanying teacher's manuals and student workbooks. The emphasis is on learning the logic of the fundamental ideas of mathematics.

Three television teachers introduce concepts and skills using an informal approach and a variety of visuals. The program developers recommend that the classroom teacher spend at least 15 minutes reviewing the teacher's manual before each television lesson to become familiar with the concepts to be presented. Thus she will be able to coordinate the followup materials and organize instruction around individual children's needs.

PIA does not spend more than 2 consecutive weeks on any one idea or skill, nor does it insist on perfection before moving to the next skill. Rather, PIA spirals a skill throughout the year—or even 3 or 4 years—allowing for reinforcement but avoiding long periods of drill.

Although programs are geared to the average learner, the teacher's manual offers suggestions for activities to use with the slow and above-average students.

PIA programs are available for both television and audiovisual showing. They may be obtained from the National Instructional Television Center, Box A, Bloomington, Indiana 47401 on both a rental and purchase basis, as follows:

Rental for CCTV—cost based upon school population and grade level—from $1,040 to $4,800

Purchase for CCTV—cost based upon school population, grade and level, type of equipment to be used—from $2,400 to $8,320

Purchase for A/V—cost based upon type of equipment to be used and grade level—from $625 to $2,400

Teacher's Manuals—cost based upon quantity ordered and grade level—from $1.62 to $3.50 each

Student Exercise Workbook—cost based upon quantity ordered and grade level—from 63 cents to $1.50 each

Further information on the program is available from:

Wisconsin Research and Development Center for Cognitive Learning
1404 Regent St.
Madison, Wisconsin 53706
(608) 262–4901

REINFORCED READINESS REQUISITES PROGRAM (RRR)

The RRR Program was designed to alleviate academic deficiencies of children from a culture of poverty at the kindergarten and first-grade levels. Its goals are to instill motivation for learning through a system of reward strategies, and to enable the child to acquire competencies and motivational patterns that are prerequisites for optimal learning in school. Approximately 157 lessons, each 10 minutes or less in length, include material on associative vocabulary, visual discrimination, numerical concepts, listening comprehension, aural discrimination, and left to right discrimination. Many lessons include associative vocabulary tasks based on evidence that deficits attributable to children from a culture of poverty cluster in this factor. Each lesson package contains teacher directions, stimulus picture cards, example cards, and individual child worksheets.

There are three phases in the implementation of the program: (1) tangible rewards are used to motivate and maintain desired behavior, and rewards are given for acceptable *group* performance; (2) tokens are given to provide the essential link in moving children from immediate to deferred gratification without harmful byproducts; and (3) tangible rewards are gradually withdrawn until performance is maintained independently from outside tangible sources of motivation such as teacher praise and approval. All RRR lessons and the preparatory teacher-training are designed to meet four terminal objectives: to increase the child's willingness to defer rewards, to make the reinforcement intrinsic or integral to the task, to increase the teacher's effectiveness in shaping and maintaining desirable behavior among his pupils, and to provide kindergarten and first-grade children with readiness competencies that are prerequisites for successful school achievement.

The emphasis in RRR is to stimulate interest in achievement without introducing the element of competition. It is group, not individual, performance that is rewarded. RRR is regarded as particularly appropriate for children from Spanish, Indian, Black, and some Anglo homes where competitive attitudes are not fostered. It is an effort to adjust such youngsters to the school situation without facing the issues related to variance in values among the several cultures.

Daily diagnostic, retention, and pre- and posttests are multiple choice instruments used as an integral part of the program. The child need not rely upon spoken English, but may demonstrate his language listening comprehension and understanding of different concepts by simply marking the correct answer. The tests are used to (1) demonstrate cognitive and affective changes associated with the application of reinforcement strategies, and (2) provide developers an objective evaluation of pupil performance. Since the program is heavily teacher-dependent, an observation schedule is used as an assessment and feedback device regarding teacher behaviors.

In the 1968–69 field tests, children scored significantly higher (88.62 percent) on the experimental program than the controls (74.40). In the 1969 field tests, subjects made substantial gains, from 54.02 for the pretest to 87.40 for the posttest. The program worked well for both boys and girls, and there was no significant difference in the performance of either. Mexican-Americans who composed about 80 percent of the population showed a substantial gain in performance.

Informal evidence of better class attendance of children participating in the RRR and increase in the class cohesiveness—children feeling obliged to help each other in areas other than the formal part of the program—were taken as additional indicators of the RRR program's success.

All RRR items have recently been packaged in a specially designed pasteboard shipping box that doubles for classroom storage. This packed with the materials now costs $110, with $72 in annual maintenance costs. A Rein-

forced Requisites Teacher's Manual, a Reinforced Readiness Requisites Children's Workshop, films, transparencies, slide-tape presentations, tokens, toys, and other miscellaneous materials are included. Teachers must receive training in the correct use of the program at institutes held under the auspices of the developer. Some 15 to 20 hours of instruction spread over 1 week are involved. Present estimates of training costs run slightly over $400 per trainee.

Several steps are underway toward dissemination, the key one being a series of arrangements with several State colleges and universities for RRR training to be regularly available to teachers at those institutions.

A second plan to "externalize" dissemination focuses upon a master teacher in a school district, board of cooperative services, or educational service center who would provide the training for teachers in those jurisdictions. The developer is currently prepared to deliver 450 units.

For more complete information on the program write the:

Southwestern Cooperative Educational Laboratory
117 Richmond Dr., N.E.
Albuquerque, N.M. 87106

THE TEACHING OF SCIENCE— A SELF-DIRECTED TEACHER EDUCATION PROGRAM

This is a self-directed learning program for the training of elementary and middle school teachers. The objectives are to give the teacher competencies in science skills, the design of instruction, classroom management, and interaction with children in the classroom. There are two versions of the program, each 45 hours in length. One is designed as a preservice 3-semester-hour course; the other is designed specifically as an inservice course for teachers who are teaching or preparing to teach *Science —A Process Approach*. There are six levels of the inservice course, corresponding to the successive grade levels of elementary school.

Materials include Self-Directed Learning Guides, modules for Analysis of Teaching Behavior and for Stating Instructional Objectives, and an Instructors Guide. Laboratory apparatus for students and demonstration materials for instructors are provided, these consisting mainly of simple common objects. The Learning Guides are written as self-paced instruction, with emphasis given to (1) activities based on mastery of the subject matter, (2) diagnostic, and thus individually prescribed, sequences, (3) self-paced format, (4) immediate feedback to reinforce or redirect an individual's performance, and (5) planned group interaction.

The preservice version has been used at the university level in a cooperatively developed teacher preparation program that is in its third year of operation. It has been nationally field tested in a network of 12 colleges and universities during the 1969–70 school year by college professors after they had participated in a specially designed Leadership Conference in the summer of 1969; and again nationally field tested during the 1970–71 school year at eight institutions with college professors who had no special training in the use of the materials. Finally, the inservice materials have been field tested with more than 900 inservice teachers. In each of these situations data were collected on how the students performed and how they felt about their experiences.

Among 500 teachers in one city using the program, there are wide reports of increased confidence in teaching science to their pupils, and more science was taught than before.

The cost of the components of hardware, some of which were specially created for the course, is approximately $600; and the cost of the printed materials is about $2 per unit. The latter are expendable. The total package is designed to serve 45 students. In addition, it is recommended that copies of both the manuals and equipment for parts of the *Science Curriculum Improvement Study* (publisher: Rand McNally), *Science—A Process Approach* (publisher: Xerox Co.), and the *Elementary Science Study* (publisher: McGraw Hill) be available. The initial cost of these materials is about $1,500. They are permanent additions to science equipment, not expendables.

Regular college science education instructors may use the preservice version to prepare teachers in the use of the program. Although students work in small groups or in teams of two, the developer recommends that during a given period of time the instructor have no more than 24 teacher-trainees for which he is responsible.

After teacher preparation, the program is designed to work with children in existing instructional facilities, preferably with tables rather than desks, and with convenient and adequate storage space. Users will likely find, however, that per-pupil floor space requirements will be higher than ordinary, to allow children to work on their own in a "laboratory" setting.

No arrangements have yet been made for a publisher, since the materials still are in the developmental stage. Dissemination plans will be based upon findings from the evaluation studies currently being concluded. One

hundred sets were requested for delivery and use in the summer of 1971, and these are available.

For more complete information on the program write the:

Research and Development Center
for Teacher Education
University of Texas
Austin, Texas 78712

OBSERVATION SITES

Educators considering the installation of one of the 13 new educational products in their local schools may first want to see it in use or talk with those who have had first-hand experience with its operation. Listed below are some of the schools where the products are being used and the names of persons (when available) who have knowledge of their practical applications:

Adult Basic Education: ESL-Empleen Ingles

Bureau of Educational Research and Service
College of Education
University of Arizona
Tucson, Arizona 85701
Waldo Anderson

Office of Pima County School Superintendent
131 West Congress Street
Tucson, Arizona 85701
Mrs. Anita Lohr

State Department of Education
Suite 165, State Capitol Building
Phoenix, Arizona 85007
James Hartgraves

Yuma School District #1
450 Sixth Street
Yuma, Arizona 85664
Don Brown

Comprehensive School Mathematics

Elementary Level:

Carbondale Public Schools
Carbondale, Illinois 62901

Secondary Level:

Turnbull Middle School
Indian and Delaware Avenues
San Mateo, California 94110
Joseph P. Gallagher

Nova Schools
3600 S.W. College Avenue
Ft. Lauderdale, Florida 33314
Larry Insel
Larry Wantuck

Central Midwestern Regional Educational Laboratory, Inc.
103 South Washington
Carbondale, Illinois 62901
CSMP Staff

Indian Creek Junior High School
4101 West 103d
Shawnee Mission
Kansas, Missouri 66207
Laurence Mayer

Old Mission Junior High School
4901 Reinhardt
Shawnee Mission, Kansas 66212
Mrs. Suzanne Miller

Broadmoor Junior High School
8301 Broadmoor
Shawnee Mission, Kansas 66212
Bill Pollman

Nipher Junior High School
700 South Kirkwood Road
Kirkwood, Missouri 63144
Jack Carpenter

MacKenzie Junior High School
8750 MacKenzie Road
St. Louis, Missouri 63123
Charles Gene Murray

Lincoln East High School
7000 A. Street
Lincoln, Nebraska
Miss Leona Penner

Canton High School
Canton, South Dakota 57013
George Gross

T.W. Browne Junior High School
3333 Sprague
Dallas, Texas 75233
Miss Betty S. Cole
Mrs. Gladys Dodd

Alf J. Mapp Junior High School
21 Alden Avenue
Portsmouth, Virginia 23702
Miss Elka Block

Breckinridge Junior High School
3901 Williamson Road, N.W.
Roanoke, Virginia 24012
Robert J. Liakos

W. E. Waters Junior High School
Portsmouth, Virginia 23700
Wheeler Pickett

Churchland Junior High School
Portsmouth, Virginia
Mrs. Marilou S. Giacofci

Cooperative Urban Teacher Education

Mid-Continent Regional Educational Laboratory
3100 McCormick
Wichita, Kansas 67213
James Abbott

Franklin School
1325 Washington
Kansas City, Missouri 64105
Mrs. Emma Jean Clark

Technical High School
Omaha, Nebraska 68131
James Swick

Woodson School
600 North High
Oklahoma City, Oklahoma 73117
Mrs. Maree Tarver

Effective Questioning—Elementary Level

Los Angeles County Schools
155 Washington Blvd.
Los Angeles, California 90015
Donald Duncan
Mrs. Lois Ellis

Public Schools of District of Columbia
Title 1 Project
415 12th Street, N.W.
Washington, D.C. 20004
Mrs. Veryl Martin

Cather School
2908 West Washington
Chicago, Illinois 60612
Mrs. Rosemary Vilim

Illinois State University
Normal, Illinois 61761
Louise Dieterle

Palatine Public Schools
Administration Building
505 East Quentin
Palatine, Illinois 60067
Mrs. Peggy Bishop

Dubuque Area Instructional Materials Center
1473 Central
Dubuque, Iowa 52001
Mrs. Jacqueline Hand

Ridgewood Public Schools
49 Cottage Place
Ridgewood, New Jersey 07450
Samuel B. Stewart

State University at Buffalo
Experimental Curriculum Development and Evaluation
1300 Elmwood Avenue
Buffalo, New York 14222
William Licata

Teachers College
Columbia University
525 West 120th Street
New York, New York 10027
Miss Christina Gullion
Bruce Joyce

Bethlehem Area Schools
2307 Rodgers Street
Bethlehem, Pennsylvania 18017
Robert W. Zimmerman

Randolph East Mead Elementary School
Guys Mills, Pennsylvania 16327
Dennis P. Livi

Department of Public Instruction
Box 911
Harrisburg, Pennsylvania 17126
Miss Helen A. McLain
Robert L. Schell

Huntingdon Area Schools
723 Portland Avenue
Huntingdon, Pennsylvania 16652
Mrs. Estella G. Stoudt

McKeesport Area Schools
Administrative Offices
Shaw and Locust Streets
McKeesport, Pennsylvania 15132
Ronald R. Bechet

Colonial School District
Plymouth Meeting, Pennsylvania 19406
Harry M. Markley

Center for Extension Programs in Education
University Extension
The University of Wisconsin
606 State Street
Madison, Wisconsin 53706
Jack Ferver

University of Wisconsin
Department of Urban Education
Milwaukee, Wisconsin 53201
Miss Kathryn O'Rourke

First Year Communications Skills

Pheonix Elementary District #1
Phoenix, Arizona 85009
Mrs. Helen Hadden

Sacramento City Unified School District
Sacramento, California 95818
Tom M. McAllister

San Diego City Unified School District
San Diego, California 92103
Mrs. Marjorie Craig

Duval County Schools
Jacksonville, Florida 32204
Mrs. Barbara Scott

Springfield Public Schools
Springfield, Illinois 62704
Miss Vivan Najim

Home-Oriented Early Childhood Education

Kanawha County Schools
200 Elizabeth Street
Charleston, West Virginia 25311
John Barnette

Clinch-Powell Educational Cooperative
Harrogate, Tennessee 37752
Larry Allen

DILENOWISCO Educational Cooperative
Virginia Avenue
Norton, Virginia 24273
Robert Byrd

Individualizing Instruction in Mathematics

Livingston University
Teacher Corps Project
Livingston, Alabama 35470
Wayne Smith

Los Angeles County Schools
155 Washington Boulevard
Los Angeles, California 90015
Donald Duncan
Mrs. Lois Ellis

Northern Colorado Educational Board of Cooperative Service
1750 30th Street, Suite 48
Boulder, Colorado 80301
Ted M. Rogers

Public Schools of District of Columbia
Title 1 Project
415 12th Street, N.W.
Washington, D.C. 20004
Mrs. Veryl Martin

Cather School
2908 West Washington
Chicago, Illinois 60612
Mrs. Rosemary Vilim

Illinois State University
Normal, Illinois 61761
Louise Dieterle

Palatine Public Schools
Administration Building
505 East Quentin
Palatine, Illinois 60067
Mrs. Peggy Bishop

Dubuque Area Instructional Materials Center
1473 Central
Dubuque, Iowa 52001
Mrs. Jacqueline Hand

Ridgewood Public Schools
Ridgewood, New Jersey 07450
49 Cottage Place
Samuel B. Stewart

State University at Buffalo
Experimental Curriculum Development and Evaluation
1300 Elmwood Avenue
Buffalo, New York 14222
William Licata

Teachers College
Columbia University
525 West 120th Street
New York, New York 10027
Miss Christina Gullion

Bethlehem Area Schools
2307 Rodgers Street
Bethlehem, Pennsylvania 18017
Robert W. Zimmerman

Randolph East Mead Elementary School
Guys Mills, Pennsylvania 16327
Dennis P. Livi

Department of Public Instruction
Box 911
Harrisburg, Pennsylvania 17126
Miss Helen A. McLain

Huntingdon Area Schools
723 Portland Avenue
Huntingdon, Pennsylvania 16652
Mrs. Estella G. Stoudt

McKeesport Area Schools
Administrative Offices
Shaw and Locust Streets
McKeesport, Pennsylvania 15132
Ronald R. Bechet

Colonial School District
Plymouth Meeting, Pennsylvania 19406
Harry M. Markley

Center for Extension Programs in Education
University Extension
The University of Wisconsin
606 State Street
Madison, Wisconsin 53706
Jack Ferver

University of Wisconsin
Department of Urban Education
Milwaukee, Wisconsin 53201
Miss Kathryn O'Rourke

MATCH (Materals and Activities for Teachers and Children) Box

Curriculum Center
12 Seaward Road
Wellesley Hills, Massachusetts 02181
George Moore
(Uses MATCH Boxes throughout school year instead of for 2-week periods)

Multi-Unit Elementary School
Red Wood City Schools
Red Wood City, California 94063
David Rawnsley

State Department of Education
State Office Building
Colfax and Sherman Avenues
Denver, Colorado 80203
Jim Nixon
Edwin Hildebrand

Department of Education
University of Hartford
Hartford, Connecticut 06002
Walter Krupa

State Department of Education
Hartford, Connecticut 06002
Mike Tobin

Department of Curriculum Development and Programs
Office of Superintendent of Public Instruction
Springfield, Illinois 62706
Mrs. Eleanor Buehrig

Indianapolis Public Schools
120 East Walnut Street
Indianapolis, Indiana 46204
Robert Kinsey

Gary Public Schools
620 East 10th Place
Gary, Indiana 46409
William T. Wallace

Department of Education
Division of Instruction
Capitol Square Building
St. Paul, Minnesota 55101
Richard Mesenburg

State Department of Education
225 West State Street
Trenton, New Jersey 08625
Anthony E. Conte
Clarence Lynn

Teacher Education Research Center
State University College
Fredonia, New York 14063
John Bouchard

State Department of Education
65 Front Street
Columbus, Ohio
C. William Phillips

State Department of Education
Rutledge Building 803
Columbia, South Carolina 29201
Mrs. Bobbie McEntire

Franklin Sherman Elementary School
McLean, Virginia
Mrs. Irene Lober

State Department of Public Instruction
126 Langdon Street
Madison, Wisconsin 53702
George Glasrud
Barbara Thompson

Parent/Child Toy-Lending Library

Lafayette Elementary School
17th and Market Streets
Oakland, California 94607

San Joaquin Delta Junior College District
3301 Kensington Way
Stockton, California 95204
Alice L. Harris

National Demonstration Center for Early Childhood Education
U.S. Office of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202
Barry Barnes
Francine Lewis

Gary City Schools Development Programs
School Service Center
620 East 10th Place
Gary, Indiana 46402
Carrie B. Dawson

Special Education for Area 6
707 Third Avenue
Marshalltown, Iowa 50158
Mike Donahue

Kansas State Teachers College
1200 Commercial Street
Emporia, Kansas 66801
Fred Dearborn

Board of Education
620 Walnut Street
Owensboro, Kentucky 42301
Mary Walker

Parent/Child Toy-Lending Library
57th and Nicolett
Duluth, Minnesota 55807

Educational Improvement Center
South Jersey Region
Glassboro-Woodbury Road
Pitman, New Jersey 08071
Linda Coya

BUILD Academy
342 Clinton Street
Buffalo, New York 14204

Parent/Child Toy-Lending Library
109 Susan Lane
Hendersonville, North Carolina 28739
Linda S. Erwin

Macmillan Grade School
315 East 5900 South
Murray, Utah 84107
Mrs. April Peterson

Carson School
P.O. Box 308
Carson, Washington 98610
Lyle Frenter

Patterns in Arithmetic

Jefferson County Board of Education
Television Studio

1009 North 21st Street
Birmingham, Alabama 35203
Gerald E. Godfrey

Arkansas ETV Commission
350 South Donaghey
Conway, Arkansas 72032
Herbert Lawrence

Archdiocese of San Francisco ETV Center
324 Middlefield Road
Menlo Park, California 94025
Miss Mary Burke

Diocese of Miami Radio and TV Commission
6200 N.E. 4th Court
Miami, Florida 33138
Mrs. Wilma Levine

Radio-TV Department
Indianapolis Public Schools
931 Fletcher Avenue
Indianapolis, Indiana 46203
Miss Nancy Hendricks

Kentucky Authority for ETV
600 Cooper Drive
Lexington, Kentucky 40502
Mrs. Virginia Fox

State Department of Education
Education Building
Augusta, Maine 04330
Jack Boynton

WQED
4802 Fifth Avenue
Pittsburgh, Pennsylvania 15213
David L. Nohling

Office of Instructional Television
State Department of Education
P.O. Box 5927
Columbia, South Carolina
Clyde Green

Richardson Independent School District
400 South Greenville Avenue
Richardson, Texas 75080
Richard Hays

WBRA-TV
P.O. Box 15
Roanoke, Virginia 24001
E. Dana Cox, Jr.
WHA-TV
University Avenue
Madison, Wisconsin 53707
Nancy McNamara

Reinforced Readiness Requisites Program

Mrs. Adele Nadeau
3840 Auburndale
San Diego, California 92111

County Civic Center
Tulare County Department of Education
Visalia, California 93277
Eva Henning Dent

Reading Department
Northeastern State College
Tahlequah, Oklahoma 74464
Jack Denton

Ector County Independent School District
Box 3912
Odessa, Texas 79760
Dorothy Prince

State Board of Education
Salt Lake City, Utah 84111
Eliott Howe

The Teaching of Science

University of South Florida
Department of Science Education
Tampa, Florida 33620
Frank D. Breit

University of Northern Iowa
Cedar Falls, Iowa 50613
Louis Finsand

Shippensburg State College
Shippensburg, Pennsylvania 17257
Dale Merkle

Sul Ross State College
Alpine, Texas 79830
Charles Lamb

The University of Texas at Austin
Austin, Texas 78712
David P. Butts

Stephen F. Austin State College
Nacogdoches, Texas 75961
Milton Payne

EDUCATIONAL PRODUCTS DISPLAY

To make educators aware of these new educational products and help them make better decisions concerning adoption/installation in the local schools, a traveling exhibit has been designed around 10; Adult Basic Education: ESL-Empleen Ingles, First-Year Communications Skills Program, Comprehensive School Mathematics, Cooperative Urban Teacher Education, Effective Questioning—Elementary Level, Home-Oriented Early Childhood Education, MATCH (Materials and Activities for Teachers and Children) Box units, Multi-Unit Elementary School, Patterns in Arithmetic, and Reinforced Readiness Requisites Program.

Each product is the subject of a modern, attractively designed, 10-foot wide by 8-foot high multimedia unit, utilizing color motion pictures or sound-slide presentations and other graphics and program materials to present a complete description of the product.

The exhibit may appropriately be utilized in such settings as:

- Inservice workshops or institutes
- Meetings of curriculum specialists and State education agency staff
- Special sessions involving school board members, local or State government officials, and local business/industry leaders concerned with education
- Annual conferences or conventions of local, State, regional, or national educational organizations

The exhibit is now touring the country and is available at no charge to interested school systems and educational organizations. Complete information on how to request and use the exhibit, the services provided in conjunction with it, and the space needed for the display, may be obtained from:

Manager of Special Projects
Instructional Dynamics Inc.
166 East Superior St.
Chicago, Illinois 60611

Past PREP Reports

The following PREP reports are available only from the ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014, in microfiche (65 cents) and hard copy ($3.29). Order by the ED number provided for each report.

1—*Instructional Television Facilities: A Guide for School Administrators and Board Members.* ED 034 077.

2—*Reading Difficulties: Reading and the Home Environment. The Principal's Responsibility.* ED 034 078.

3—*Establishing Central Reading Clinics: The Administrator's Role.* ED 034 079.

4—*Correcting Reading Problems in the Classroom.* ED 034 080.

5—*Treating Reading Disabilities: The Specialist's Role.* ED 034 081.

6—*Bilingual Education.* ED 034 082.

7—*Research for School Board Members: School-Community Relations.* ED 034 083.

8—*Research for School Board Members: Teacher Militancy, Negotiations, and Strikes.* ED 034 084.

9—*Job-Oriented Education Programs for the Disadvantaged.* ED 034 085.

10—*Seminar on Preparing the Disadvantaged for Jobs: A Planning Handbook.* ED 034 086.

11—*Research on Elementary Mathematics.* ED 034 087.

12—*Paraprofessional Aides.* ED 034 906.

13—*Sharing Educational Services.* ED 036 666.

14—*Social Studies and the Disadvantaged.* ED 037 588.

15—*Student Participation in Academic Governance.* ED 038 555.

16—*Individualized Instruction.* ED 041 185. (Hard copy, $6.58)

17—*Microteaching.* ED 041 190.

18—*Reinforcing Productive Classroom Behavior: A Teacher's Guide to Behavior Modification.* ED 042 061.

19—*Migrant Education.* ED 042 936.

20—*Teacher Recruitment and Selection.* ED 043 797.

21—*Teacher Evaluation.* ED 044 546.

22—*A Readiness Test for Disadvantaged Preschool Children.* ED 047 168.

23—*Educational Cooperatives.* ED 048 521.

ERIC DOCUMENT REPRODUCTION SERVICE
LEASCO INFORMATION PRODUCTS, INC.

P.O. Drawer O, Bethesda, Md. 20014

PREP REPORTS

ON-DEMAND ORDER BLANK

BILL TO: _____ **SHIP TO:** _____

_____ _____

_____ _____

_____ _____ _____

PURCHASE ORDER NO. _____

REPORTS TO BE ORDERED

ITEM	ED Number	Number of Copies MF	Number of Copies HC	PRICE	TOTAL PRICE
1					
2					
3					
4					
5					

☐ TAX NUMBER _____ **SUB-TOTAL** _____

☐ DEPOSIT ACCT. NUMBER _____ **TAX** _____

☐ CHARGE (OVER $10.00) _____ _____

☐ CHECK NUMBER _____ **TOTAL**

Quality warranty. LIPCO will replace products returned because of reproduction defects or incompleteness. The quality of the input document is not the responsibility of LIPCO. Best available copy will be supplied.

Indicate payment method desired. Payment must accompany all orders of $10.00 or less. Make all drafts payable to EDRS.

Sign AUTHORIZATION and date order.

AUTHORIZATION _____ DATE _____

TITLE OR DEPT. _____

MAKE ALL DRAFTS PAYABLE TO EDRS

Orders are filled only from ED accession numbers. Titles are not checked. *Please be sure you have supplied the correct numbers.*

ERIC DOCUMENT REPRODUCTION SERVICE is operated by Leasco Information Products, Inc. for the U.S. Office of Education.

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON, D.C. 20402

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. GOVERNMENT PRINTING OFFICE